

LUKAS, MCGOWAN, NACE & GUTIERREZ

CHARTERED

1819 H STREET, N.W.
SEVENTH FLOOR
WASHINGTON, D.C. 20006

RUSSELL D. LUKAS
GERALD S. MCGOWAN
DAVID L. NACE
THOMAS GUTIERREZ
ELIZABETH R. SACHS
GEORGE L. LYON, JR
PAMELA L. GIST
DAVID A. LAFURIA
TERRY J. ROMINE
MARCI E. GREENSTEIN+
BOB J. GOLDBERG
J. JUSTIN MCCLURE++
MARILYN I. SUCHECKI+++

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OFFICE OF SECRETARY

March 15, 1994

CONSULTING ENGINEERS
THOMAS G. ADCOCK, P.E.
MEHRAN NAZARI
ALI KUZEHKANANI
JAMES R. LANDOLL, P.E.
LEROY A. ADAM
FARID SEYEDVOSOGHI

(202) 857-3500

TELECOPIER
(202) 842-4485

WRITER'S DIRECT DIAL

(202) 828-9471

VIA HAND DELIVERY

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20036

Re: PR Docket No. 93-61
RM-8013
Comments on Ex Parte Communications

Dear Mr. Caton:

Enclosed herewith please find Comments on Ex Parte Communications in PR Docket No. 93-61.

Kindly refer any questions or correspondence to the undersigned.

Very truly yours,


Elizabeth R. Sachs

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Enclosure

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MAR 15 1994

Before the
FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)

) **Amendment of Part 90 of the**
) **Commission's Rules to Adopt**
) **Regulations for Automatic**
) **Vehicle Monitoring Systems**
)**PR Docket No. 93-61**
RM-8013

To: The Commission

COMMENTS ON EX PARTE COMMUNICATIONS

An ad hoc coalition of utility distribution companies, by its attorneys, and pursuant to the Commission's Public Notice, DA 94-129 (Private Rad. Bur. February 9, 1994), submits its Comments on the written ex parte presentations made recently in this docket.¹ In support, the following is shown:

1. On January 26, 1994, PacTel Teletrac ("Teletrac") made an ex parte submission to the Chief of the Private Radio Bureau setting forth a technical proposal for the use of the 902-928 MHz band for the licensing of Automatic Vehicle Monitoring ("AVM") systems. Under the Teletrac proposal, ten megahertz of spectrum would be allocated for two wide-area multilateration systems. The proposal would allocate the

¹ The Public Notice provided for the submission of comments by February 25, 1994 and replies by March 7, 1994. Pursuant to the Commission's Order, DA 94-178 (Private Rad. Bur. February 25, 1994), the time for submitting comments was extended to March 15, 1994 and the time for filing replies was extended to March 22, 1994.

remaining 16 MHz of spectrum to narrow band Automatic Vehicle Identification ("AVI") providers and would "improve[] the environment for Part 15 devices."² Teletrac also seeks authority to offer emergency voice transmission over AVM systems.³

2. Several other parties have submitted related ex parte comments, including, Hughes Transportation Management Systems,⁴ Pinpoint Communications, Inc.,⁵ MobileVision,⁶ and Southwestern Bell Mobile Systems, Inc. ("SBMS").⁷

3. The coalition members disagree with Teletrac's unsupported assertion that its proposal would improve the environment for Part 15 users in the 902-928 MHz band. Indeed, were the Teletrac and similar proposals adopted, it would likely destroy the environment for Part 15 users in the 902-928 MHz band. One of the coalition members participated in earlier stages of this proceeding.⁸ As SCG explained in its Comments,

² Teletrac Comments at 1.

³ Id. at 3. Teletrac further suggests a licensing scheme based on MTAs or BTAs. SCG takes no position on this aspect of Teletrac's proposal.

⁴ See Hughes Ex Parte Comments (February 3, 1994). Hughes's proposal appears focused on local-area AVI systems employing low power transmitters. Such systems would tend to pose less of a risk of interference to Part 15 devices than would systems such as Teletrac's, though localized interference to Part 15 devices, including AMR devices, could result without adequate coordination.

⁵ See Pinpoint Ex Parte Comments (January 24, 1994), as supplemented (February 1, 1994). The Pinpoint system, which is reported on in its ex parte presentations, is a wide-area system similar to that proposed by Teletrac.

⁶ See MobileVision Ex Parte Comments (February 1, 1994).

⁷ See SBMS Ex Parte Comments (February 2, 1994) and SBMS Ex Parte Comments (February 7, 1994).

See Comments of Southern California Gas Company (June 28, 1994).

it is a transporter and supplier of natural gas and related products and services to approximately 4.65 million consumers located within southern California, and holds licenses to operate numerous Commission-authorized facilities.⁹ SCG advised the FCC that the company has begun a major project utilizing radio-based systems for Automatic Meter Reading ("AMR") and Off-Site Meter Reading ("OMR"), including unlicensed Part 15 devices operated in the 902-928 MHz frequency band. SCG plans, by 1996, to equip as many as 77,000 customer meters with AMR devices where justified by cost or safety concerns, or where automatic meter reading would otherwise serve to enhance SCG's or the customer's efficiency.¹⁰

⁹ SCG holds licenses in the Power Radio, Industrial/Land Transportation and Business Radio Services under Part 90 of the Commission's Rules, and in the Private Microwave Service under Part 94.

¹⁰ The classes of customers for whom AMR is most efficient are:

1. "High cost to read" routes, requiring meter readers to drive long distances to obtain readings;
2. "Chronically inaccessible" meters, where repeated visits by meter readers are necessary to obtain readings;
3. "High risk" areas, in which the physical safety of meter readers may be jeopardized;
4. "Summary account billing" meters, for large customers with multiple facility locations who require a summary usage bill on a fixed date; and
5. "Core Aggregation Transportation ("CAT") customers, to determine if daily load balancing options are effective both for the aggregators and for SCG.

See Comments at 2.

4. SCG's extensive use of this spectrum for AMR is typical of the industry. Washington Gas has already placed 170,000 units in operation and has committed to install at least 80,000 more. Similarly, Boston Gas Company has in excess of 250,000 AMR units operating in this band.

5. The availability of AMR is an increasingly vital tool for these and many other utilities around the country in their efforts to deliver low-cost energy and other services to the American public and industry. Congress and the Department of Energy have recognized that AMR technology furthers the national goals of conserving energy resources and protecting public health and safety, and have sought to encourage new and innovative uses of AMR technology.¹¹ The Commission, in accordance with its public interest mandate, must consider how its action in this proceeding would affect the development of AMR systems and act to prevent or minimize any possible harm which might result to AMR systems as a result of its decision herein. The fact that this usage does not require individual FCC licenses may have caused the FCC to underestimate the number of AMR-equipped meters already in use in this country. Because this is a matter which the ex parte commentors largely ignore in their submissions, SCG addresses this issue below.

6. The members of the coalition would first emphasize that they do not desire to prevent the introduction of AVM. To the contrary, they believe such systems may offer benefits in some ways similar to those derived from AMR technology. Some of

¹¹ See Innovative Utility Communications Technology (NOI), 58 FR 4987-02 (1993). Indeed, this Commission has recognized affirmatively that AMR systems serve the public interest. See generally, the record in Docket No. 79-18.

these companies intend to explore their utility. However, significant technical and public interest problems exist with the proposals advanced by some of the ex parte commentators which require discussion.

7. The coalition's essential concern is that wide-band AVM use of the 902-928 MHz band is incompatible with existing users of that spectrum. As a result, AVM systems will cause and be subject to destructive interference with one or both of the following results: (1) AVM and other users of this spectrum will be unable to offer reliable service to their subscribers; and (2) AVM will force other users off this band, denying the public needed service. Both of these results are unquestionably contrary to the public interest.¹²

8. It is clear that Teletrac's and other wide-area AVM technical proposals could effectively drive AMR and other low power devices from the 902-928 MHz band. For example, Teletrac envisions exclusive AVM allocations from 902-912 MHz, plus another 400 KHz from 924.99-925.39 MHz. Although this is only 10.4 MHz of the 26 MHz band, seemingly leaving 15.6 MHz available for ARM usage, on closer examination it is apparent that this is not the case. Industrial Scientific Medical ("ISM") unlicensed radiators are authorized at 915 MHz. To prevent interference to and from these radiators, the 3 MHz above and below 915 MHz must be left as a guardband. Thus, these six megahertz are not suitable for low power AMR devices, reducing the available spectrum for AMR to the seven megahertz between 918-925 MHz, plus the 2.6

¹² SCG is also a licensee of Multiple Address Systems operating in the 928-929 MHz band. SCG is concerned that the presence of wide-band pulse-ranging AVM systems on nearby frequencies could interfere with its licensed MAS facilities.

Mhz above 925.4 MHz. However, it is extremely doubtful that AMR systems will have interference-free use of any of the remaining spectrum.

9. First, AVM mobiles operating under Teletrac's proposal would generally operate with 10 watts ERP, using limited duration pulsed wide-band emissions. This raises a substantial concern regarding interference with AMR receivers operating at the lower frequencies between 918 to 925 MHz considering both the random location and timing of transmissions from AVM mobiles, as well as AVM system calibration transmitters operating in an area.¹³ Second, and more ominous, is the clear likelihood of destructive interference from 500 watt ERP "forward link" transmitters operating continuously just above 925 MHz. These transmitters will be a likely cause of blanketing interference in the upper portion of the seven megahertz between 918 and 925 MHz. Third, the 2.6 Mhz between 925.4 and 928 would be essentially useless to AMR, because of the proximity of the high power forward link transmitters just below this band, and because of the multitude of transmitters operating from 928 MHz (in the Multiple Address Service) through 931 MHz (in the Private Carrier and Common Carrier Paging Services), with ERPs of up to 1000 watts.¹⁴

¹³ Significantly, neither Teletrac nor the other ex parte commentators indicate what provision would be made for attenuation of out of band transmissions.

¹⁴ At least one of the ex parte commentators candidly admitted the significant interference risk to Part 15 devices of the AVM proposals. As Southwestern Bell's Comments make clear:

Although there is a substantial literature on performance of spread-spectrum systems in the presence of multiple access interference and narrowband interference, there is a relative paucity of work on the performance of spread-spectrum systems which partially overlay other

10. SBMS's proposal is even more alarming in this regard. SBMS would scatter four wide-area systems throughout the 902-928 MHz band, with wide-band systems operating at 902-902.5 MHz, 906-914 MHz, 916-924 MHz and 927.5-928 MHz. With this configuration, the forward links for these wide-area systems would be located at either end of the band. Narrow band systems would be relegated to the 3.5 MHz of spectrum between 902.5 and 906, the 2 MHz of spectrum at 914-916 and the 3.5 MHz of spectrum between 924-927.5 MHz. As discussed above, the spectrum surrounding 915 MHz is not usable, nor is the spectrum adjacent to wide-area high powered AVM systems.

11. Thus, the overall effect of adopting the Teletrac proposal, or the other proposals for wide-area AVM, would be to relegate Part 15 AMR devices to such a small

spread-spectrum systems with significantly different parameters. As a result, the interference issues involving AVM systems and Part 15 devices will require significant further study to resolve.

However, we can make the following qualitative conclusions. Since AVM systems will operate at significantly higher power levels (5-10W) and have the advantage of siting base stations at favorable locations, it is likely that the interference from Part 15 devices will be small. Nonetheless, when a Part 15 device is operating much closer to a base station than an AVM mobile unit, the transmitted power is large enough to produce a significant near/far problem. In the other direction, Part 15 devices operating indoors and over short distances are unlikely to experience significant interference from AVM systems. However, Part 15 devices designed for outdoor operation may experience significant interference. Some interference rejection techniques may be available to address narrowband interference from Part 15 devices.

Southwestern Bell Ex Parte Comments, at Attachment (Cameron, et. al, Capacity and Interference Resistance of Spread-Spectrum Automatic Vehicle Monitoring Systems in the 902-928 MHz ISM Band, at 9 (1994)).

sliver of the 902-928 MHz band that there would be insufficient useable spectrum for operation of territory-wide AMR service. This would effectively force AMR from the 902-928 MHz band with no viable spectrum alternative for the service.

12. The proponents of these ex parte proposals have failed to address adequately the matters discussed above which are critical to any FCC consideration of the allocation plans presented. Moreover, they have not demonstrated a demand for the systems proposed which cannot already be satisfied by already authorized services.

13. The Teletrac system claims positional accuracy of only a 300 foot radius, 90 percent of the time. By contrast, experience indicates that the Global Positioning System ("GPS") is usually accurate to one second of arc, or about 100 feet. With "differential" GPS transmitters added,¹⁵ the GPS positional accuracy improves to 10-15 feet, as many as 30 times better than Teletrac's proposed system. It is thus clear that a terrestrial based positioning system such as Teletrac proposes is redundant to the Loran C system and technically inferior to GPS. For this reason, the AVM proposals do not justify effectively closing the 902-928 MHz band to Part 15 users.¹⁶ Similarly, the proposal for emergency voice transmissions, despite any initial visceral appeal, is, in fact, merely a hook in aid of Teletrac's fishing for spectrum. It is redundant to the multitude of already authorized and, in many cases, operational voice communications

¹⁵ Such service is becoming commercially available on a subscription basis.

¹⁶ It is to be emphasized that MAS does not offer a solution to the problem faced by AMR operators because the cost of MAS transmitters is not typically cost effective for this particular application. Moreover, there are presently tens of millions of dollars of AMR equipment now in use which would be rendered obsolete by removal of AMR from this band.

services in the Public Safety, Business Radio, SMR, cellular, conventional mobile telephone, PCS, Mobile Satellite, GMRS, CB, and amateur services. Emergency communications are already transmitted routinely in these services. Teletrac's proposal has not been demonstrated to be a needed supplement to those services, but would result in the inefficient use of the spectrum under consideration.¹⁷

14. In sum, adoption of the Teletrac proposal or the other wide-band pulse-ranging multilateration system proposals would directly and indirectly consume most of the 902-928 MHz band for a single purpose operation of a technically inferior AVM system for which no substantial market demand has been shown. It would substantially reduce, if not eliminate, the use of Part 15 devices, such as AMR systems, which have very substantial embedded equipment and have expressed continued growth for over a decade.¹⁸ The members of the coalition urge the Commission to reject Teletrac's and similar wide-band proposals in this regard, and to take steps to ensure that any AVM proposals adopted adequately protect the interest of Part 15 users in the 902-928 MHz band.


¹⁷ Indeed, it is extremely unlikely that any vehicle employing a AVM system for positioning will not also be equipped for voice communications.

¹⁸ Significantly none of the ex parte comments appears to address the need to relocate AMR and similar devices to other spectrum if the wide band proposals are adopted. Not only is an issue raised as to what, if any, other spectrum may be available, but also an issue is raised as to whether it is economically justified for Part 15 users -- and ultimately the public -- to bear the expense of replacing embedded equipment with an estimated replacement cost of tens of millions of dollars. It is inequitable and wasteful to force public utilities to finance replacing such embedded equipment, even if a band had been identified to which they could migrate. Surely if such a cost is to be borne, it should be borne by the wide band AVM providers who would cause and who would benefit from such a migration.

Respectfully submitted,

**BAY STATE GAS COMPANY
THE BERKSHIRE GAS COMPANY
BLACKSTONE GAS COMPANY
BOSTON GAS COMPANY
BRISTOL AND WARREN GAS COMPANY
CITY OF WESTFIELD GAS AND
ELECTRIC LIGHT DEPARTMENT
CITY OF HOLYOKE, MASSACHUSETTS
GAS AND ELECTRIC DEPARTMENT
COLONIAL GAS COMPANY
COMMONWEALTH GAS COMPANY
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ENERGYNORTH NATURAL GAS, INC.
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LIGHT COMPANY
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THE PROVIDENCE GAS COMPANY
THE SOUTHERN CONNECTICUT
GAS COMPANY
UGI UTILITIES, INC.
VALLEY GAS COMPANY
WAKEFIELD MUNICIPAL LIGHT
DEPARTMENT
WASHINGTON GAS LIGHT COMPANY
YANKEE GAS SERVICE COMPANY**

By:


Elizabeth R. Sachs
George L. Lyon, Jr.
Their Attorneys

Lukas, McGowan, Nace & Gutierrez, Chartered
1819 H Street, NW, Suite 700
Washington, DC 20006

(202) 857-3500

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